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Fig 1

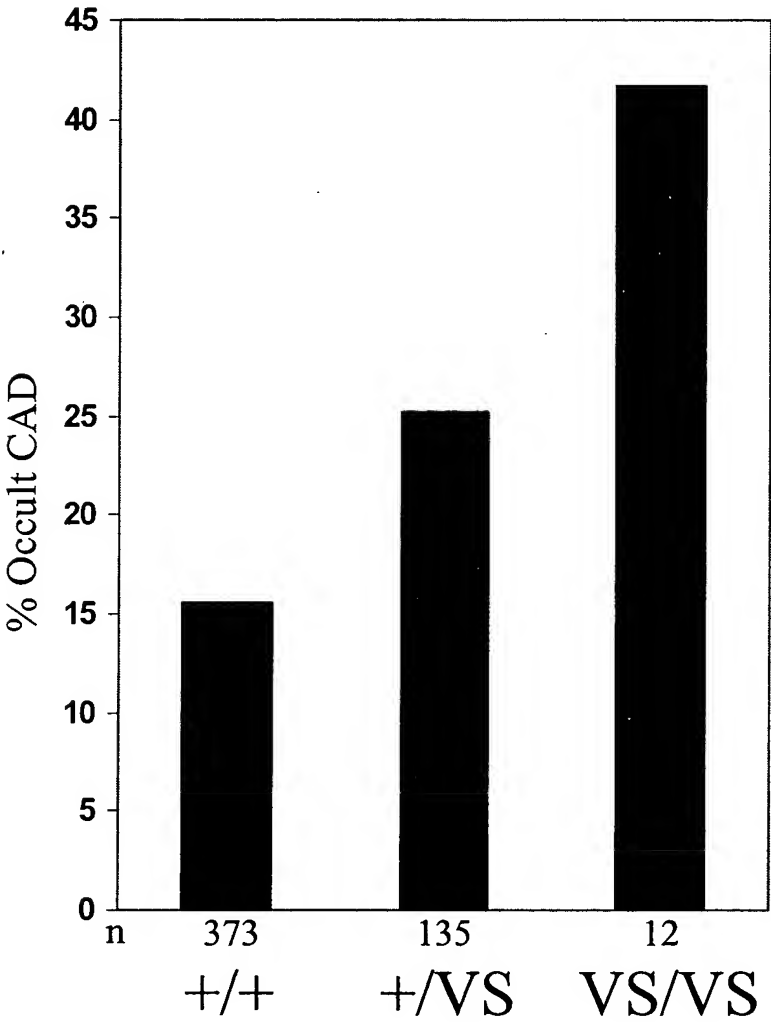


Fig 2

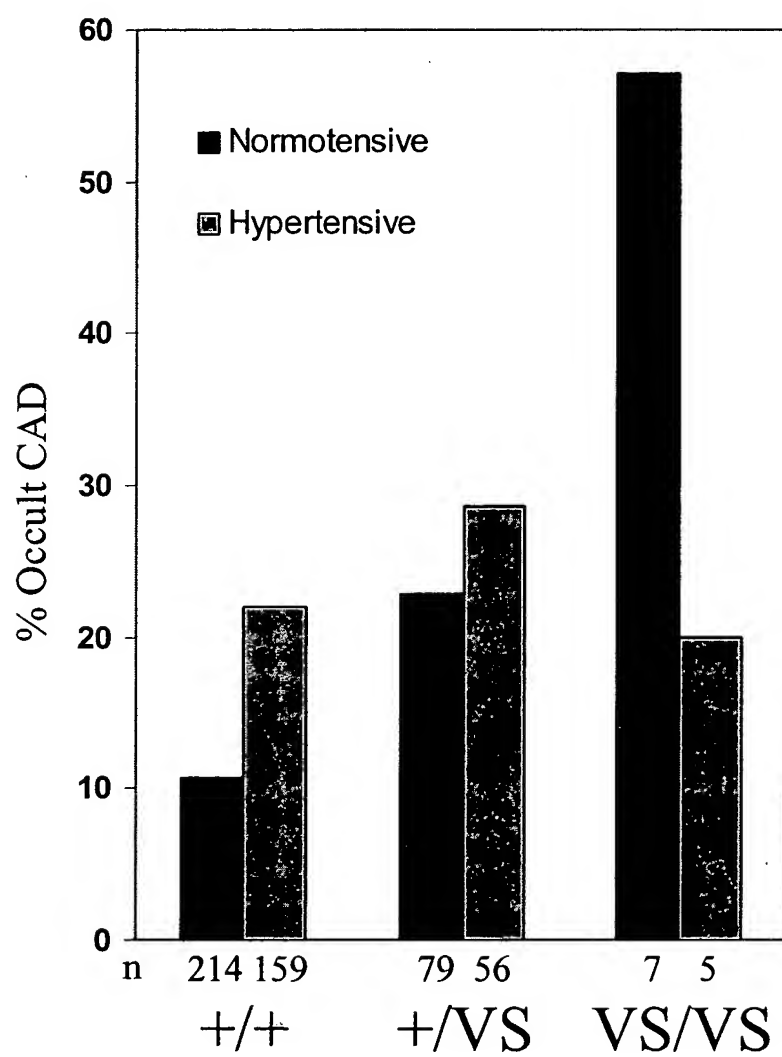


Fig 3

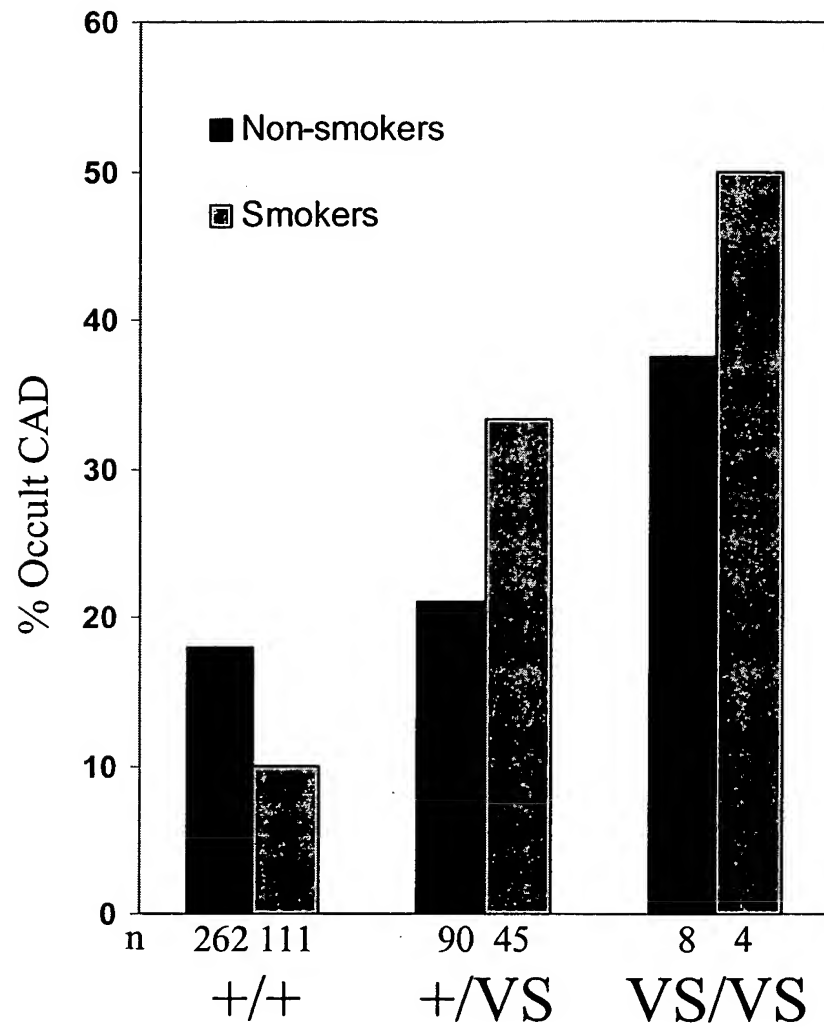
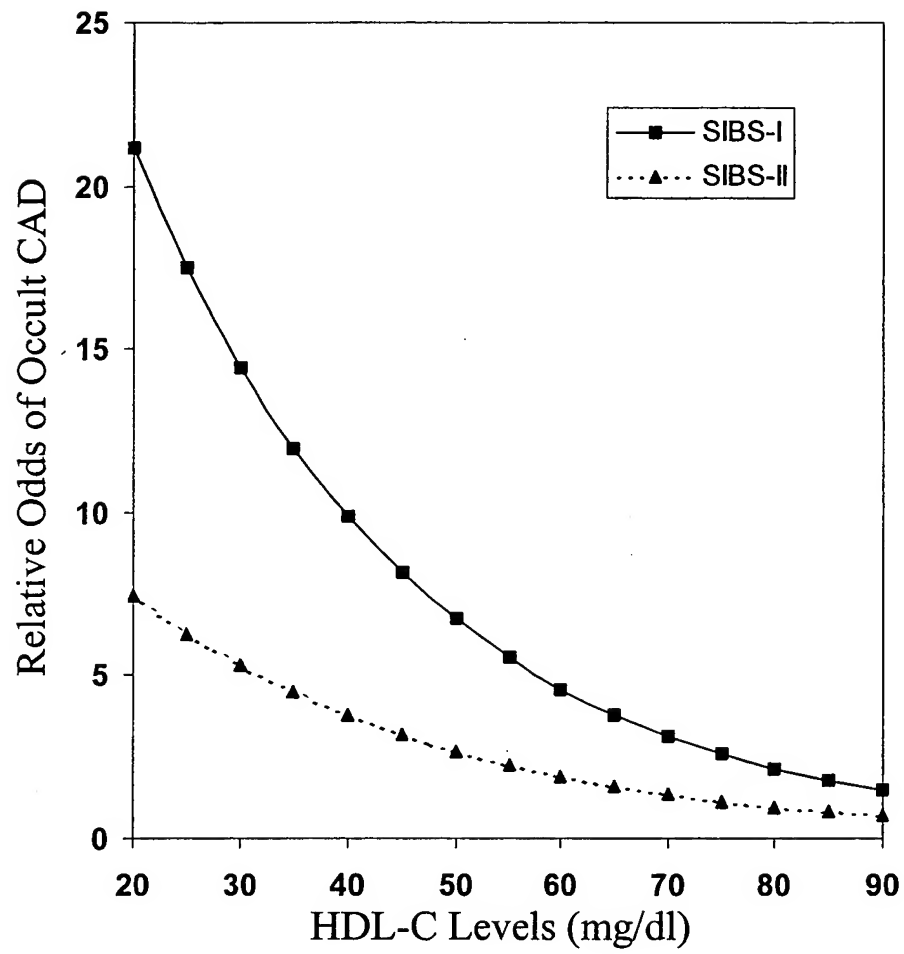


Fig 4



Amino Acid Sequence of Secreted and Membrane-Bound Forms of KLOTHO

Secreted Form (klotho Δ) SEQ ID NO: 1

MPASAPRRRPRPPQSLSLLLVLLGLGGRRRLRAEPGDGAQTWARFSRPPAPEAAGLFQGTFFPDGFLWAVG
SAAYQTEGGWQQHGKGASIWDTFTHHPLAPPGDSRNASLPLGAPSPLOPATGDVASDSYNNVFRDTEALR
ELGVTHYRFSISWARVLPNGSAGVPNREGLRYYRLLERLRELGVQPVVTLYHWDLPQRLQDAYGGWANR
ALADHFRDYAELCFRHFQGGQVKYWITIDNPYVVAWHGYATGRLAPGIRGSPRLGYLVAHNLLLAHAKVWH
LYNTSFRPTQGGQVSIALSSHWINPRRMTDHSIKECQKSLDFVLGWFAPVFDGDYPESMKNNLSSILP
DFTSEKKFIKGTADFFALCFGPTLSFQLLDPHMKFRQLESNLRQLLSWIDLEFNHPQIFIVENGWVFS
GTTKRDDAKYMYLKKFIMETLKAIKLDGVDVIGYTAWSLMDGFEWHRGYSIRRGLFYVDFLSQDKMLLP
KSSALFYQKLIKNGFPPLPENQPLEGTFPCDFAWGVVDNYIQVSQLTKPISSLTKPYH

Membrane-bound form (full-length klotho) SEQ ID NO: 2

MPASAPRRRPRPPQSLSLLLVLLGLGGRRRLRAEPGDGAQTWARFSRPPAPEAAGLFQGTFFPDGFLWAVG
SAAYQTEGGWQQHGKGASIWDTFTHHPLAPPGDSRNASLPLGAPSPLOPATGDVASDSYNNVFRDTEALR
ELGVTHYRFSISWARVLPNGSAGVPNREGLRYYRLLERLRELGVQPVVTLYHWDLPQRLQDAYGGWANR
ALADHFRDYAELCFRHFQGGQVKYWITIDNPYVVAWHGYATGRLAPGIRGSPRLGYLVAHNLLLAHAKVWH
LYNTSFRPTQGGQVSIALSSHWINPRRMTDHSIKECQKSLDFVLGWFAPVFDGDYPESMKNNLSSILP
DFTSEKKFIKGTADFFALCFGPTLSFQLLDPHMKFRQLESNLRQLLSWIDLEFNHPQIFIVENGWVFS
GTTKRDDAKYMYLKKFIMETLKAIKLDGVDVIGYTAWSLMDGFEWHRGYSIRRGLFYVDFLSQDKMLLP
KSSALFYQKLIKNGFPPLPENQPLEGTFPCDFAWGVVDNYIQVDTTSLSQFTDLNVYLWDVHHSKRLIKV
DGVVTKKRKSYCVDFAAIQPQIALLOEMHVTHFRFSLDWALILPLGNQSQVNHTILQYYRCMASELVRVN
ITPVVALWQPMAPNQGLPRLRLARQGAWEENPYTALAFAYARLCFQELGHVHKLWITMNEPYTRNMTYSAG
HNLLKAHALAWHVYNEKFRHAQNGKISIALQADWIEPACPFSSQKDEVAERVLEFDIGWLAEPFSGSDY
PWVMDWLNQRNNFLLPYFTEDEKKLIQGTDFLALSHYTTILVDSEKEDPIKYNDYLEVQEMTDITWLN
SPSQVAVVPWGLRKVLNWLKFKYGDLPYIIISNGIDDGLHAEDDQLRVYMQNYINEALKAHILDGINLC
GYFAYSFNDRTPRFGLYRYAADQFEPKASKHYRKIIDSNGFPGPETLERFCPEEFTVCTECSFFHTRK
SLLAFIAFLFFASIIISLSLIFYYSKKGRRSYK

F 352 is mutated to V
C 370 is mutated to S

Amino Acid Sequences of Secreted and Membrane-Bound KL-VS Allelic Variation

SEQ ID NO: 3

Secreted Form (klothoΔ)

MPASAPRRRPRPPQSLSLLLVLLGLGGRRRLRAEPGDGAQTWARFSRPPAPEAAGLFQGTFFPDGFLWAVG
 SAAYQTEGGWQQHGKGAS IWDTFTHHPLAPPGDSRNASLPLGAPSPHQPATGDVASDSYNNVFRDTEALR
 ELGVTHYRFSISWARVLPNGSAGVPNREGLRYYRLLERLRELGVQPVVTLYHWDLPQRLQDAYGGWANR
 ALADHFRDYAELCFRHFQGGQVKYWITIDNPYVVAWHGYATGRLAPGIRGSPRLGYLVAHNLLLAHAKVWH
 LYNTSFRPTQGGQVSIALSSHWINPRRMTDHSIKECQKSLDFVLGWFAKPVFIDGDYPESMKNNLSSILP
 DVTESEKKFIKGTADFFALSFQPTLSFQLLDPHMKFRQLESPNLRQLLSWIDLEFNHPQIFIVENGWFVS
 GTTKRDDAKYMYLKKFIMETLKAIKLDGVDVIGYTAWSLMDGFEWHRGYSIRRGLFYVDFLSQDKMLLP
 KSSALFYQKLEKNGFPPLPENQPLEGTFPCDFAWGVVDNYIQVSQLTKPISSLTKPYH

SEQ ID NO:4

Membrane-bound form (full-length klotho)

MPASAPRRRPRPPQSLSLLLVLLGLGGRRRLRAEPGDGAQTWARFSRPPAPEAAGLFQGTFFPDGFLWAVG
 SAAYQTEGGWQQHGKGAS IWDTFTHHPLAPPGDSRNASLPLGAPSPHQPATGDVASDSYNNVFRDTEALR
 ELGVTHYRFSISWARVLPNGSAGVPNREGLRYYRLLERLRELGVQPVVTLYHWDLPQRLQDAYGGWANR
 ALADHFRDYAELCFRHFQGGQVKYWITIDNPYVVAWHGYATGRLAPGIRGSPRLGYLVAHNLLLAHAKVWH
 LYNTSFRPTQGGQVSIALSSHWINPRRMTDHSIKECQKSLDFVLGWFAKPVFIDGDYPESMKNNLSSILP
 DVTESEKKFIKGTADFFALSFQPTLSFQLLDPHMKFRQLESPNLRQLLSWIDLEFNHPQIFIVENGWFVS
 GTTKRDDAKYMYLKKFIMETLKAIKLDGVDVIGYTAWSLMDGFEWHRGYSIRRGLFYVDFLSQDKMLLP
 KSSALFYQKLEKNGFPPLPENQPLEGTFPCDFAWGVVDNYIQVDTTSLSQFTDLNVYLWDVHHSKRLIKV
 DGVVTKKRKSYCVDFAAIQPIALLQEMHVTHFRFSLDWALILPLGNQSQVNHTILQYYRCMASELVRVN
 ITPVVALWQPMAPNQGLPRLARQGAWEENPYTALAFAYARLCFQELGHHVKLWITMNEPYTRNMTYSAG
 HNLLKAHALAWHVYNEKFRHAQNGKISIALQADWIEPACPFSSQKDEVAERVLEFDIGWLAEPFSGSDY
 PWVMRDWLNQRNNFLLPYFTEDEKKLIQGTDFLALSHYTTILVDSEKEDPIKYNDYLEVQEMTDITWLN
 SPSQVAVVPWGLRKVLNWLKFKYGDLPYIIISNGIDDLHAEDDQLRVYMQNYINEALKAHILDGINLC
 GYFAYSFNDRTAPRFGLYRYAADQFEPKASMKHYRKIIDSNGFGPETLERFCPEEFTVCTECSFFHTRK
 SLLAFIAFLFFASIIISLSLIFYYSKKGRRSYK

F 352 is mutated to V

C 370 is mutated to S

Figure 7

sense primer, 5'-AGGCTCATGCCAAAGTCTGG

Figure 8

anti-sense primer, 5'-GTTTCCATGATGAACTTTTGAGG